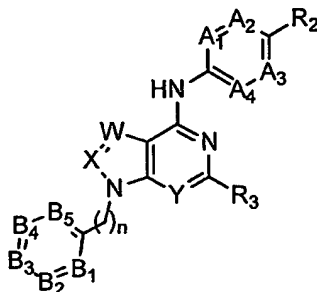


What is claimed is:

1. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

n is 0 or 1;

W, X and Y are each independently N or CR₁;

A₁, A₂, A₃ and A₄ are each independently N or CR₄;

B₁, B₂, B₃, B₄ and B₅ are each independently N or CR₅;

R₁ is independently selected at each occurrence from hydrogen, halogen, hydroxy, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- or di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₂ is cyano, cyanoC₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkylsulfonyl, haloC₁-C₆alkylsulfonyl, mono- or di-(C₁-C₆alkyl)aminosulfonyl or mono- or di-(C₁-C₆alkyl)aminocarbonyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ;

R_z is:

- (a) hydrogen;
- (b) C_1 - C_8 alkyl, C_2 - C_8 alkenyl, C_2 - C_8 alkynyl, C_1 - C_8 alkanoyl, C_3 - C_8 alkanone, C_2 - C_8 alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b ; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ;

R_4 is independently selected at each occurrence from R_b , or two adjacent R_4 groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b ;

R_5 is independently selected at each occurrence from R_b , or two adjacent R_5 groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b ; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and $-COOH$; and
- (ii) C_1 - C_8 alkyl, C_1 - C_8 alkenyl, C_1 - C_8 alkynyl, C_3 - C_8 cycloalkyl, halo C_1 - C_8 alkyl, C_1 - C_8 alkoxy, halo C_1 - C_8 alkoxy, C_1 - C_8 alkanoyl, C_1 - C_8 alkanoyloxy, C_1 - C_8 alkylthio, C_2 - C_8 alkyl ether, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylsulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminosulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminocarbonyl, and mono- and di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy C_1 - C_4 alkyl, halo C_1 - C_4 alkyl, and mono- and di- $(C_1$ - C_4 alkyl)amino.

2. A compound or salt according to claim 1, wherein Y is N.
3. A compound or salt according to claim 1 or claim 2, wherein W is N and X is CR_1 .
4. A compound or salt according to claim 1 or claim 2, wherein X is N and W is CR_1 .
5. A compound or salt according to any one of claims 1-4, wherein n is 0.
6. A compound or salt according to any one of claims 1-5, wherein A_2 and A_3 are C- CH_3 , C-halogen or CH.
7. A compound or salt according to claim 6, wherein A_2 and A_3 are CH.

8. A compound or salt according to any one of claims 1-7, wherein A_1 and A_4 are independently N or CH.

9. A compound or salt according to any one of claims 1-8, wherein each R_4 is independently chosen from hydrogen, halogen, cyano, C_1 - C_6 alkyl, C_1 - C_6 alkenyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy and halo C_1 - C_6 alkoxy.

10. A compound or salt according to any one of claims 1-9, wherein at least two of B_1 , B_2 , B_3 , B_4 and B_5 are CR_5 , and wherein at least one R_5 is not hydrogen.

11. A compound or salt according to claim 10, wherein each R_5 is independently chosen from hydrogen, halogen, cyano, $-COOH$, C_1 - C_6 alkyl, C_1 - C_6 alkenyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy and halo C_1 - C_6 alkoxy.

12. A compound or salt according to any one of claims 1-11, wherein R_2 is trifluoromethyl, methylsulfonyl, trifluoromethylsulfonyl or 2-cyano-prop-2-yl.

13. A compound or salt according to any one of claims 1-12, wherein R_3 is:

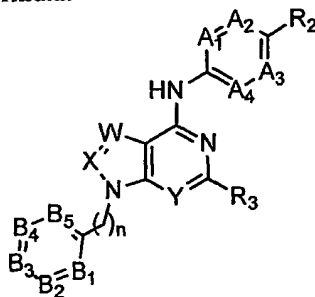
(a) hydrogen, halogen or cyano; or

(b) C_1 - C_6 alkyl, C_1 - C_6 alkenyl, C_2 - C_6 alkyl ether, mono- or di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl or (4- to 10-membered heterocycloalkyl) C_0 - C_6 alkyl, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, C_1 - C_4 alkyl, and halo C_1 - C_4 alkyl.

14. A compound or salt according to claim 13, wherein R_3 is hydrogen.

15. A compound or salt according to claim 13, wherein R_3 is C_2 - C_6 alkyl ether, mono- or di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl or (4- to 10-membered heterocycloalkyl) C_0 - C_6 alkyl, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, methyl and ethyl.

16. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

n is 0 or 1;

W, X and Y are each independently N or CR₁;

A₁, A₂, A₃ and A₄ are each independently N or CR₄; such that A₂ and A₃ are not C₁-C₆alkyl if R₂ is C₁-C₆alkyl;

B₁, B₂, B₃, B₄ and B₅ are each independently N or CR₅;

R₁ is independently selected at each occurrence from hydrogen, halogen, hydroxy, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₂ is halogen, cyano, amino, C₃-C₆alkyl, cyanoC₁-C₆alkyl, haloC₁-C₆alkyl, mono- or di-(C₁-C₆alkyl)aminoC₀-C₄alkyl, C₁-C₆alkylsulfonyl, haloC₁-C₆alkylsulfonyl, mono- or di-(C₁-C₆alkyl)aminosulfonyl, or mono- or di-(C₁-C₆alkyl)aminocarbonyl;

R₃ is:

(i) hydrogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_y to form a 3- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

such that R₃ is not an unsubstituted alkyl group;

R₄ is independently selected at each occurrence from R_b, or two adjacent R₄ groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b;

R₅ is independently selected at each occurrence from hydrogen, hydroxy, halogen, amino, aminocarbonyl, cyano, nitro, -COOH, C₁-C₆alkyl, C₁-C₆alkenyl, C₁-C₆alkynyl, haloC₁-C₆alkyl, aminoC₁-C₆alkyl, cyanoC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; or two adjacent R₅ groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino.

- 17. A compound or salt according to claim 16, wherein Y is N.
- 18. A compound or salt according to claim 16 or claim 17, wherein W is N and X is CR₁.
- 19. A compound or salt according to claim 16 or claim 17, wherein X is N and W is CR₁.
- 20. A compound or salt according to any one of claims 16-19, wherein n is 0.
- 21. A compound or salt according to any one of claims 16-20, wherein A₂ and A₃ are CH.
- 22. A compound or salt according to any one of claims 16-21, wherein A₁ and A₄ are independently N or CH.
- 23. A compound or salt according to any one of claims 16-22, wherein at least two of B₁, B₂, B₃, B₄ and B₅ are CR₅, and wherein at least one R₅ is not hydrogen.

24. A compound or salt according to claim 23, wherein each R_5 is independently chosen from hydrogen, halogen, cyano, $-\text{COOH}$, $\text{C}_1\text{-C}_6\text{alkyl}$, $\text{C}_1\text{-C}_6\text{alkenyl}$, $\text{haloC}_1\text{-C}_6\text{alkyl}$, $\text{C}_1\text{-C}_6\text{alkoxy}$ and $\text{haloC}_1\text{-C}_6\text{alkoxy}$.

25. A compound or salt according to any one of claims 16-24, wherein R_2 is halogen, isopropyl, t-butyl, trifluoromethyl, methylsulfonyl, trifluoromethylsulfonyl or 2-cyano-prop-2-yl.

26. A compound or salt according to any one of claims 16-25, wherein R_3 is:

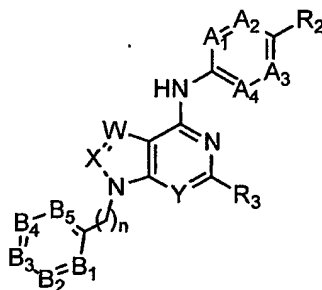
(a) hydrogen or cyano; or

(b) $\text{C}_2\text{-C}_6\text{alkyl}$ ether, mono- or di- $(\text{C}_1\text{-C}_6\text{alkyl})\text{aminoC}_0\text{-C}_4\text{alkyl}$ or (4- to 10-membered heterocycloalkyl) $\text{C}_0\text{-C}_6\text{alkyl}$, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, $\text{C}_1\text{-C}_4\text{alkyl}$, and $\text{haloC}_1\text{-C}_4\text{alkyl}$.

27. A compound or salt according to claim 26, wherein R_3 is hydrogen.

28. A compound or salt according to claim 26, wherein R_3 is $\text{C}_2\text{-C}_6\text{alkyl}$ ether, mono- or di- $(\text{C}_1\text{-C}_6\text{alkyl})\text{aminoC}_0\text{-C}_4\text{alkyl}$ or (4- to 10-membered heterocycloalkyl) $\text{C}_0\text{-C}_6\text{alkyl}$, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, methyl and ethyl.

29. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

n is 0 or 1;

W , X and Y are each independently N or CR_1 ;

A_1 and A_4 are independently N or CH ;

A_2 and A_3 are independently N or CR_4 ; such that neither A_2 nor A_3 is $\text{C}_1\text{-C}_6\text{alkyl}$ if R_2 is $\text{C}_1\text{-C}_6\text{alkyl}$;

B_1 , B_2 , B_3 , B_4 and B_5 are each independently N or CR_5 ; such that at least one of B_1 , B_2 , B_3 , B_4 and B_5 is a substituted carbon;

R_1 is independently selected at each occurrence from hydrogen, halogen, hydroxy, cyano, nitro, amino, $\text{C}_1\text{-C}_6\text{alkyl}$, $\text{haloC}_1\text{-C}_6\text{alkyl}$, $\text{haloC}_1\text{-C}_6\text{alkoxy}$, $\text{C}_1\text{-C}_6\text{alkoxycarbonyl}$, aminosulfonyl, $\text{C}_1\text{-}$

C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₂ is halogen, cyano, amino, C₃-C₆alkyl, cyanoC₁-C₆alkyl, haloC₁-C₆alkyl, mono- or di-(C₁-C₆alkyl)aminoC₀-C₄alkyl, C₁-C₆alkylsulfonyl, haloC₁-C₆alkylsulfonyl, mono- or di-(C₁-C₆alkyl)aminosulfonyl, or mono- or di-(C₁-C₆alkyl)aminocarbonyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_y to form a 3- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R₄ is independently selected at each occurrence from R_b, or two adjacent R₄ groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b;

R₅ is independently selected at each occurrence from hydrogen, hydroxy, halogen, amino, aminocarbonyl, cyano, nitro, -COOH, C₁-C₆alkyl, C₁-C₆alkenyl, C₁-C₆alkynyl, C₃-C₈cycloalkyl, haloC₁-C₆alkyl, aminoC₁-C₆alkyl, cyanoC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, aminosulfonyl, C₁-

C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; or two adjacent R₅ groups are taken together to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 4 substituents independently chosen from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino.

30. A compound or salt according to claim 29, wherein Y is N.

31. A compound or salt according to claim 29 or claim 30, wherein W is N and X is CR₁.

32. A compound or salt according to claim 29 or claim 30, wherein X is N and W is CR₁.

33. A compound or salt according to any one of claims 29-32, wherein n is 0.

34. A compound or salt according to any one of claims 29-33, wherein A₂ and A₃ are CH.

35. A compound or salt according to any one of claims 29-34, wherein one or both of B₁ and B₅ is CR₅, and wherein R₅ at B₁ or B₅ is not hydrogen.

36. A compound or salt according to any one of claims 29-35, wherein each R₅ is independently chosen from hydrogen, halogen, cyano, -COOH, C₁-C₆alkyl, C₁-C₆alkenyl, haloC₁-C₆alkyl, C₁-C₆alkoxy and haloC₁-C₆alkoxy.

37. A compound or salt according to any one of claims 29-36, wherein R₂ is halogen, isopropyl, t-butyl, trifluoromethyl, methylsulfonyl, trifluoromethylsulfonyl or 2-cyano-prop-2-yl.

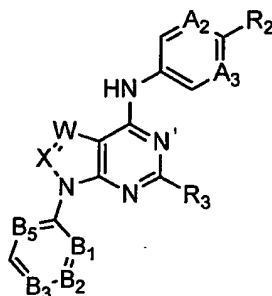
38. A compound or salt according to any one of claims 29-37, wherein R₃ is:

- (a) hydrogen, halogen or cyano; or
- (b) C₁-C₆alkyl, C₂-C₆alkyl ether, mono- or di-(C₁-C₆alkyl)aminoC₀-C₄alkyl or (4- to 10-membered heterocycloalkyl)C₀-C₆alkyl, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, C₁-C₄alkyl, and haloC₁-C₄alkyl.

39. A compound or salt according to claim 38, wherein R_3 is hydrogen.

40. A compound or salt according to claim 38, wherein R_3 is C_2 - C_6 alkyl ether, mono- or di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl or (4- to 10-membered heterocycloalkyl) C_0 - C_6 alkyl, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, methyl and ethyl.

41. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

W and X are independently N or CR_1 , such that at least one of W and X is N;

A_2 and A_3 are each CR_4 ;

B_1 , B_2 and B_3 are CR_5 ; such that at least one R_5 is not hydrogen;

B_5 is N or CH;

R_1 , if present, is hydrogen or methyl;

R_2 is halogen, isopropyl, t-butyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkylsulfonyl, halo C_1 - C_6 alkylsulfonyl, hydroxy C_1 - C_6 alkyl or cyano C_1 - C_6 alkyl;

R_3 is:

(a) hydrogen, halogen or cyano; or

(b) C_2 - C_6 alkyl ether, mono- or di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl or (4- to 10-membered heterocycloalkyl) C_0 - C_6 alkyl, each of which is substituted with from 0 to 4 substituents independently chosen from halogen, cyano, C_1 - C_4 alkyl, and halo C_1 - C_4 alkyl;

each R_4 is independently chosen from methyl, halogen and hydrogen; and

each R_5 is independently chosen from hydrogen, halogen, cyano, $-COOH$, C_1 - C_6 alkyl, C_1 - C_6 alkenyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy and halo C_1 - C_6 alkoxy.

42. A compound or salt according to any one of claims 1-41, wherein the compound has an IC_{50} value of 1 micromolar or less in a capsaicin receptor calcium mobilization assay.

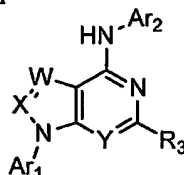
43. A compound or salt according to any one of claims 1-41, wherein the compound has an IC_{50} value of 100 nanomolar or less in a capsaicin receptor calcium mobilization assay.

44. A compound or salt according to any one of claims 1-41, wherein the compound has an IC_{50} value of 10 nanomolar or less in a capsaicin receptor calcium mobilization assay.

45. A pharmaceutical composition, comprising at least one compound or salt according to any one of claims 1-41, in combination with a physiologically acceptable carrier or excipient.

46. A pharmaceutical composition according to claim 45, wherein the composition is formulated as an injectible fluid, an aerosol, a cream, a gel, a pill, a capsule, a syrup or a transdermal patch.

47. A method for reducing calcium conductance of a cellular capsaicin receptor, comprising contacting a cell expressing a capsaicin receptor with at least one compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar_1 is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b ;

Ar_2 is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b ;

W, X and Y are each independently N or CR_1 ;

R_1 is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C_1 - C_6 alkyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy, halo C_1 - C_6 alkoxy, C_1 - C_6 alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C_1 - C_6 alkylsulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminosulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminocarbonyl, and mono- and di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl;

R_3 is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula $-R_x-L-M-R_y$, wherein:

R_x is C_0 - C_3 alkylene;

L is a single covalent bond, O, $(C=O)$, $(C=O)O$, $O(C=O)$, S, SO_2 , $(C=O)_pN(R_z)$, $N(R_z)(C=O)_p$, $SO_2N(R_z)$, or $N(R_z)SO_2$, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

and thereby reducing calcium conductance of the capsaicin receptor.

48. A method according to claim 47, wherein the compound is a compound according to any one of claims 1-41.

49. A method according to claim 47, wherein the cell is contacted *in vivo* in an animal.

50. A method according to claim 49, wherein the cell is a neuronal cell.

51. A method according to claim 49, wherein the cell is a urothelial cell.

52. A method according to claim 49, wherein during contact the compound is present within a body fluid of the animal.

53. A method according to claim 49, wherein the compound is present in the blood of the animal at a concentration of 1 micromolar or less.

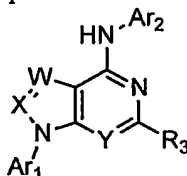
54. A method according to claim 53, wherein the compound is present in the blood of the animal at a concentration of 500 nanomolar or less.

55. A method according to claim 54, wherein the compound is present in the blood of the animal at a concentration of 100 nanomolar or less.

56. A method according to claim 49, wherein the animal is a human.

57. A method according to claim 49, wherein the compound is administered orally.

58. A method for inhibiting binding of vanilloid ligand to a capsaicin receptor *in vitro*, the method comprising contacting capsaicin receptor with at least one compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C_0 - C_3 alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO_2 , (C=O) $_p$ N(R_z), N(R_z)(C=O) $_p$, SO_2 N(R_z), or N(R_z) SO_2 , wherein p is 0 or 1;

M is a single covalent bond, C_1 - C_8 alkyl, C_1 - C_8 alkenyl or C_1 - C_8 alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b ; and

R_y is:

- (a) hydrogen;
- (b) C_1 - C_8 alkyl, C_2 - C_8 alkenyl, C_2 - C_8 alkynyl, C_1 - C_8 alkoxy, (C₁-C₈alkyl)amino C_0 - C_8 alkyl, C_1 - C_8 alkanoyl, C_3 - C_8 alkanone, C_2 - C_8 alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b ; or
- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ;

R_z is:

- (a) hydrogen;
- (b) C_1 - C_8 alkyl, C_2 - C_8 alkenyl, C_2 - C_8 alkynyl, C_1 - C_8 alkanoyl, C_3 - C_8 alkanone, C_2 - C_8 alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b ; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ; and

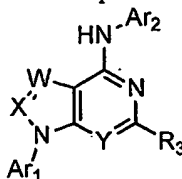
R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C_1 - C_8 alkyl, C_1 - C_8 alkenyl, C_1 - C_8 alkynyl, C_3 - C_8 cycloalkyl, halo C_1 - C_8 alkyl, C_1 - C_8 alkoxy, halo C_1 - C_8 alkoxy, C_1 - C_8 alkanoyl, C_1 - C_8 alkanoyloxy, C_1 - C_8 alkylthio, C_2 - C_8 alkyl ether, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylsulfonyl, mono- and di-(C_1 - C_6 alkyl)aminosulfonyl, mono- and di-(C_1 - C_6 alkyl)aminocarbonyl, and mono- and di-(C_1 - C_6 alkyl)amino C_0 - C_4 alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy C_1 - C_4 alkyl, halo C_1 - C_4 alkyl, and mono- and di-(C_1 - C_4 alkyl)amino;

under conditions and in an amount sufficient to detectably inhibit vanilloid ligand binding to capsaicin receptor.

59. A method according to claim 58, wherein the compound is a compound according to any one of claims 1-41.

60. A method for inhibiting binding of vanilloid ligand to capsaicin receptor in a patient, comprising contacting cells expressing capsaicin receptor with at least one compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

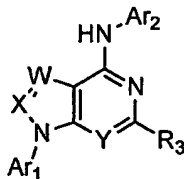
and thereby inhibiting binding of vanilloid ligand to the capsaicin receptor in the patient.

61. A method according to claim 60, wherein the compound is a compound according to any one of claims 1-41.

62. A method according to claim 60, wherein the patient is a human.

63. A method according to claim 60, wherein the compound is present in the blood of the patient at a concentration of 1 micromolar or less.

64. A method for treating a condition responsive to capsaicin receptor modulation in a patient, comprising administering to the patient a therapeutically effective amount of at least one compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken

together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b ;

Ar_2 is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b ;

W, X and Y are each independently N or CR_1 ;

R_1 is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C_1 - C_6 alkyl, halo C_1 - C_6 alkyl, C_1 - C_6 alkoxy, halo C_1 - C_6 alkoxy, C_1 - C_6 alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C_1 - C_6 alkylsulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminosulfonyl, mono- and di- $(C_1$ - C_6 alkyl)aminocarbonyl, and mono- and di- $(C_1$ - C_6 alkyl)amino C_0 - C_4 alkyl;

R_3 is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula $-R_x-L-M-R_y$, wherein:

R_x is C_0 - C_3 alkylene;

L is a single covalent bond, O, $(C=O)$, $(C=O)O$, $O(C=O)$, S, SO_2 , $(C=O)_pN(R_z)$, $N(R_z)(C=O)_p$, $SO_2N(R_z)$, or $N(R_z)SO_2$, wherein p is 0 or 1;

M is a single covalent bond, C_1 - C_8 alkyl, C_1 - C_8 alkenyl or C_1 - C_8 alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b ; and

R_y is:

(a) hydrogen;

(b) C_1 - C_8 alkyl, C_2 - C_8 alkenyl, C_2 - C_8 alkynyl, C_1 - C_8 alkoxy, $(C_1$ - C_8 alkyl)amino C_0 - C_8 alkyl, C_1 - C_8 alkanoyl, C_3 - C_8 alkanone, C_2 - C_8 alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b ; or

(c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ;

R_z is:

(a) hydrogen;

(b) C_1 - C_8 alkyl, C_2 - C_8 alkenyl, C_2 - C_8 alkynyl, C_1 - C_8 alkanoyl, C_3 - C_8 alkanone, C_2 - C_8 alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b ; or

(c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b ; and

R_b is independently chosen at each occurrence from:

(i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and $-COOH$; and

- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

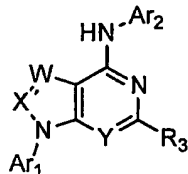
and thereby alleviating the condition in the patient.

65. A method according to claim 64, wherein the compound is a compound according to any one of claims 1-41.

66. A method according to claim 64, wherein the patient is suffering from (i) exposure to capsaicin, (ii) burn or irritation due to exposure to heat, (iii) burns or irritation due to exposure to light, (iv) burn, bronchoconstriction or irritation due to exposure to tear gas, infectious agents, air pollutants or pepper spray, or (v) burn or irritation due to exposure to acid.

67. A method according to claim 64, wherein the condition is asthma or chronic obstructive pulmonary disease.

68. A method for treating pain in a patient, comprising administering to a patient suffering from pain a therapeutically effective amount of at least one compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b, and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl,

C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

- (i) hydrogen, halogen, nitro or cyano; or
- (ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

and thereby alleviating pain in the patient.

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

(a) hydrogen;

(b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or

(c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

R_b is independently chosen at each occurrence from:

(i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and

(ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-

69. A method according to claim 68, wherein the compound is a compound according to any one of claims 1-41.

70. A method according to claim 68, wherein the compound is present in the blood of the patient at a concentration of 1 micromolar or less.

71. A method according to claim 68, wherein the compound is present in the blood of the patient at a concentration of 500 nanomolar or less.

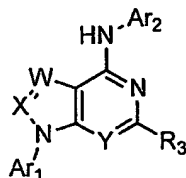
72. A method according to claim 68, wherein the compound is present in the blood of the patient at a concentration of 100 nanomolar or less.

73. A method according to claim 68, wherein the patient is suffering from neuropathic pain.

74. A method according to claim 68, wherein the pain is associated with a condition selected from: postmastectomy pain syndrome, stump pain, phantom limb pain, oral neuropathic pain, toothache, postherpetic neuralgia, diabetic neuropathy, reflex sympathetic dystrophy, trigeminal neuralgia, osteoarthritis, rheumatoid arthritis, fibromyalgia, Guillain-Barre syndrome, meralgia paresthetica, burning-mouth syndrome, bilateral peripheral neuropathy, causalgia, neuritis, neuronitis, neuralgia, AIDS-related neuropathy, MS-related neuropathy, spinal cord injury-related pain, surgery-related pain, musculoskeletal pain, back pain, headache, migraine, angina, labor, hemorrhoids, dyspepsia, Charcot's pains, intestinal gas, menstruation, cancer, venom exposure, irritable bowel syndrome, inflammatory bowel disease and trauma.

75. A method according to claim 68, wherein the patient is a human.

76. A method for treating itch in a patient, comprising administering to a patient a therapeutically effective amount of a compound of the formula:



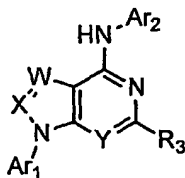
or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b, and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;
and thereby alleviating itch in the patient.

77. A method according to claim 76, wherein the compound is a compound according to any one of claims 1-41.

78. A method for treating cough or hiccup in a patient, comprising administering to a patient a therapeutically effective amount of a compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R_z), N(R_z)(C=O)_p, SO₂N(R_z), or N(R_z)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

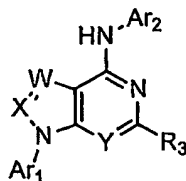
R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

and thereby alleviating cough or hiccup in the patient.

79. A method according to claim 78, wherein the compound is a compound according to any one of claims 1-41.

80. A method for treating urinary incontinence or overactive bladder in a patient, comprising administering to a patient a therapeutically effective amount of a compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar₁ is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b;

Ar₂ is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b;

W, X and Y are each independently N or CR₁;

R₁ is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, C₁-C₆alkyl, haloC₁-C₆alkyl, C₁-C₆alkoxy, haloC₁-C₆alkoxy, C₁-C₆alkoxycarbonyl, aminocarbonyl, aminosulfonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl;

R₃ is:

- (i) hydrogen, halogen, nitro or cyano; or
- (ii) a group of the formula -R_x-L-M-R_y, wherein:

R_x is C₀-C₃alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R₂), N(R₂)(C=O)_p, SO₂N(R₂), or N(R₂)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R₂ to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R₂ is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

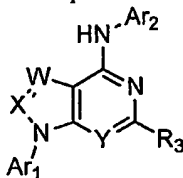
R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and $-\text{COOH}$; and
- (ii) $\text{C}_1\text{-C}_8$ alkyl, $\text{C}_1\text{-C}_8$ alkenyl, $\text{C}_1\text{-C}_8$ alkynyl, $\text{C}_3\text{-C}_8$ cycloalkyl, halo $\text{C}_1\text{-C}_8$ alkyl, $\text{C}_1\text{-C}_8$ alkoxy, halo $\text{C}_1\text{-C}_8$ alkoxy, $\text{C}_1\text{-C}_8$ alkanoyl, $\text{C}_1\text{-C}_8$ alkanoyloxy, $\text{C}_1\text{-C}_8$ alkylthio, $\text{C}_2\text{-C}_8$ alkyl ether, $\text{C}_1\text{-C}_6$ alkoxycarbonyl, $\text{C}_1\text{-C}_6$ alkylsulfonyl, mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ aminosulfonyl, mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ aminocarbonyl, and mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ amino $\text{C}_0\text{-C}_4$ alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, $\text{C}_1\text{-C}_4$ alkyl, $\text{C}_1\text{-C}_4$ alkoxy, hydroxy $\text{C}_1\text{-C}_4$ alkyl, halo $\text{C}_1\text{-C}_4$ alkyl, and mono- and di- $(\text{C}_1\text{-C}_4\text{alkyl})$ amino;

and thereby alleviating urinary incontinence or overactive bladder in the patient.

81. A method according to claim 80, wherein the compound is a compound according to any one of claims 1-41.

82. A method promoting weight loss in an obese patient, comprising administering to a patient a therapeutically effective amount of a compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

Ar_1 is a phenyl, benzyl or a 5- or 6-membered heteroaryl or (heteroaryl)methyl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b and groups that are taken together to form a fused 5- or 6-membered carbocycle or heterocycle that is substituted with from 0 to 5 substituents independently chosen from R_b ;

Ar_2 is phenyl, naphthyl or a 5- to 10-membered heteroaryl group, each of which is substituted with from 0 to 5 substituents independently chosen from R_b ;

W, X and Y are each independently N or CR_1 ;

R_1 is independently selected at each occurrence from hydrogen, halogen, cyano, nitro, amino, $\text{C}_1\text{-C}_6$ alkyl, halo $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_1\text{-C}_6$ alkoxy, halo $\text{C}_1\text{-C}_6$ alkoxy, $\text{C}_1\text{-C}_6$ alkoxycarbonyl, aminocarbonyl, aminosulfonyl, $\text{C}_1\text{-C}_6$ alkylsulfonyl, mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ aminosulfonyl, mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ aminocarbonyl, and mono- and di- $(\text{C}_1\text{-C}_6\text{alkyl})$ amino $\text{C}_0\text{-C}_4$ alkyl;

R_3 is:

(i) hydrogen, halogen, nitro or cyano; or

(ii) a group of the formula $-\text{R}_x\text{-L-M-R}_y$, wherein:

R_x is $\text{C}_0\text{-C}_3$ alkylene;

L is a single covalent bond, O, (C=O), (C=O)O, O(C=O), S, SO₂, (C=O)_pN(R₂), N(R₂)(C=O)_p, SO₂N(R₂), or N(R₂)SO₂, wherein p is 0 or 1;

M is a single covalent bond, C₁-C₈alkyl, C₁-C₈alkenyl or C₁-C₈alkynyl, wherein each alkyl, alkenyl or alkynyl is substituted with from 0 to 9 substituents independently selected from R_b; and

R_y is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, (C₁-C₈alkyl)aminoC₀-C₈alkyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_z to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b;

R_z is:

- (a) hydrogen;
- (b) C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkanoyl, C₃-C₈alkanone, C₂-C₈alkyl ether, or a 3- to 10-membered carbocycle or heterocycle, each of which is substituted with from 0 to 9 substituents independently selected from R_b; or
- (c) taken together with R_x or R_y to form a 4- to 10-membered carbocycle or heterocycle that is substituted with from 0 to 9 substituents independently selected from R_b; and

R_b is independently chosen at each occurrence from:

- (i) hydrogen, hydroxy, halogen, amino, aminocarbonyl, aminosulfonyl, cyano, nitro and -COOH; and
- (ii) C₁-C₈alkyl, C₁-C₈alkenyl, C₁-C₈alkynyl, C₃-C₈cycloalkyl, haloC₁-C₈alkyl, C₁-C₈alkoxy, haloC₁-C₈alkoxy, C₁-C₈alkanoyl, C₁-C₈alkanoyloxy, C₁-C₈alkylthio, C₂-C₈alkyl ether, C₁-C₆alkoxycarbonyl, C₁-C₆alkylsulfonyl, mono- and di-(C₁-C₆alkyl)aminosulfonyl, mono- and di-(C₁-C₆alkyl)aminocarbonyl, and mono- and di-(C₁-C₆alkyl)aminoC₀-C₄alkyl; each of which is substituted with from 0 to 3 substituents independently chosen from hydroxy, halogen, amino, cyano, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxyC₁-C₄alkyl, haloC₁-C₄alkyl, and mono- and di-(C₁-C₄alkyl)amino;

and thereby promoting weight loss in the patient.

83. A method according to claim 82, wherein the compound is a compound according to any one of claims 1-41.

84. A compound or salt according to any one of claims 1-41, wherein the compound or salt is radiolabeled.

85. A method for determining the presence or absence of capsaicin receptor in a sample, comprising the steps of:

- (a) contacting a sample with a compound or salt according to any one of claims 1-41, under conditions that permit binding of the compound to capsaicin receptor; and
- (b) detecting a level of the compound bound to capsaicin receptor, and therefrom determining the presence or absence of capsaicin receptor in the sample.

86. A method according to claim 85, wherein the compound is a radiolabeled compound according to claim 84, and wherein the step of detection comprises the steps of:

- (i) separating unbound compound from bound compound; and
- (ii) detecting the presence or absence of bound compound in the sample.

87. A packaged pharmaceutical preparation, comprising:

- (a) a pharmaceutical composition according to claim 45 in a container; and
- (b) instructions for using the composition to treat pain.

88. A packaged pharmaceutical preparation, comprising:

- (a) a pharmaceutical composition according to claim 45 in a container; and
- (b) instructions for using the composition to treat cough or hiccup.

89. A packaged pharmaceutical preparation, comprising:

- (a) a pharmaceutical composition according to claim 45 in a container; and
- (b) instructions for using the composition to treat obesity.

90. A packaged pharmaceutical preparation, comprising:

- (a) a pharmaceutical composition according to claim 45 in a container; and
- (b) instructions for using the composition to treat urinary incontinence or overactive bladder.

91. The use of a compound or salt according to any one of claims 1-41 for the manufacture of a medicament for the treatment of a condition responsive to capsaicin receptor modulation.

92. A use according to claim 91, wherein the condition is pain, asthma, chronic obstructive pulmonary disease, cough, hiccup, obesity, urinary incontinence, overactive bladder, exposure to capsaicin, burn or irritation due to exposure to heat, burn or irritation due to exposure to light, burn, bronchoconstriction or irritation due to exposure to tear gas, infectious agents, air pollutants or pepper spray, or burn or irritation due to exposure to acid.